Laboratory Safety

Duke University Institutional Biosafety Committee (IBC)
Viral Vector Policy
February, 2001

The following table shows the prescribed precautions for working with three commonly used vectors. Understand that the precautions outlined below are the minimal requirements for working with each agent. Those systems, which express genes that expand the host range of the vector, or increase the hazard of the virus beyond wild-type, may necessitate higher containment practices and facilities.

Viral Vector	Hazard(s)	Biosafety Level; Animal Biosafety Level	Additional Precautions	Animal Handling (DLAR approval required)	Transport / Waste Issues	Spills,(Wearing PPE): see Emergency Response Guide
Adenovirus	Droplet, aerosol, injection	BSL-2; ABSL-2 Special considerations for transgenes, ex., toxins, oncogenes, elements that alter host range, immune suppressors, etc.	**All** work done in BSC; Negative pressure lab preferred; Cuffed lab gown/gloves; OESO approved lab audit; SOPs developed and available; Biohaz sign on door with agent specified	Viruses must be screened for replication competence before injection of animals. SOPs developed and available for animal handling. Special handling of bedding and cages for 48 hours post injection of animals; Incineration or autoclaving of bedding; Incineration of carcasses; DLAR assigned signage on cages and doors; Housing approved by DLAR.	Transport specimens in a secondary, sealed container; All waste autoclaved or incinerated by laboratory staff familiar with precautions	Alert people in immediate area of spill; Allow aerosols to settle; absorb spill with paper towel/lab diaper; expose to 10% bleach for 20-30 minutes; Use paper towels to wipe up spill; Clean spill area with towels soaked in 10% bleach; Place towels in autoclave bag and decontaminate in autoclave. Notify Biological Safety

Vaccinia	Aerosol, droplet, injection	BSL-2; ABSL-2 Special considerations for transgenes, ex., toxins, oncogenes, elements that alter host range, immune suppressors, etc. MVA strains encouraged for use.	**All** work done in BSC; Negative pressure lab preferred; Cuffed lab gown/gloves; OESO approved lab audit; SOPs developed and available; Biohaz sign on door with agent specified; Consult with Occupational Medicine physician for a medical evaluation regarding vaccination. (Note: use of MVA strains does not require vaccination)	Special handling of bedding and cages post injection of animals; SOPs developed and available for animal handling. Incineration of bedding and carcasses; Workers handling or decontaminating bedding or cages must consult with Occupational Medicine Physician for a medical evaluation regarding vaccination. Incineration or autoclaving of bedding; Incineration of carcasses; DLAR assigned signage on cages and doors; Housing approved by DLAR.	Transport specimens in a secondary, sealed container; All waste autoclaved or incinerated by laboratory staff familiar with precautions and who have been evaluated by Occupational Medicine Physician for vaccination	Alert people in immediate area of spill; Allow aerosols to settle; absorb spill with paper towel/lab diaper; expose to 10% bleach for 20-30 minutes; Use paper towels to wipe up spill; Clean spill area with fresh towels soaked in 10% bleach; Place towels in autoclave bag and decontaminate in autoclave. Notify Biological Safety

Retrovirus **Lentiviruses**	Injection, splash to face	BSL-2; ABSL-2 Special considerations for transgenes, ex., toxins, oncogenes, elements that alter host range, immune suppressors, etc. *BSL-2 facilities; BSL-3 work practices;* *ABSL-2 facilities; ABSL-3 work practices*	Sharps precautions emphasized; Full face protection if working outside BSC; OESO approved lab audit; SOPs developed and available; Biohaz sign on door with agent specified; ***All*** *work with lentivirues must be done in a BSC*	Work with amphotrophic viruses must be screened for replication competence before injection of animals. Incineration or autoclaving of bedding; Incineration of carcasses; DLAR assigned signage on cages and doors; Housing approved by DLAR.	Transport specimens in a secondary, sealed container; All waste autoclaved or incinerated by laboratory staff familiar with precautions	Alert people in immediate area of spill; Allow aerosols to settle; absorb spill with paper towel/lab diaper; expose to 10% bleach for 20-30 minutes; Use paper towels to wipe up spill; Clean spill area with fresh towels soaked in 10% bleach; Place towels in autoclave bag and decontaminate in autoclave. Notify Biological Safety
Other viral vectors Ex., Baculovirus, Adenoassociated virus, Simliki		Use Minimum requirements for Adenovirus.	Use Minimum requirements for Adenovirus.	Use Minimum requirements for Adenovirus.	Use Minimum requirements for Adenovirus.	

Abbreviations:

DLAR: Division of Laboratory Animal Resources
PPE: Personal Protective Equipment
BSC: Biological Safety Cabinet
OESO: Occupational and Environmental Safety Office